

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number
WO 00/76194 A1

(51) International Patent Classification⁷: H04M 7/38

(21) International Application Number: PCT/FI00/00495

(22) International Filing Date: 2 June 2000 (02.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
991283 4 June 1999 (04.06.1999) FI

(71) Applicant (for all designated States except US): NOKIA NETWORKS OY [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): EINOLA, Heikki [FI/FI]; Kaksoiskiventie 7-9 B 5, FIN-02760 Espoo

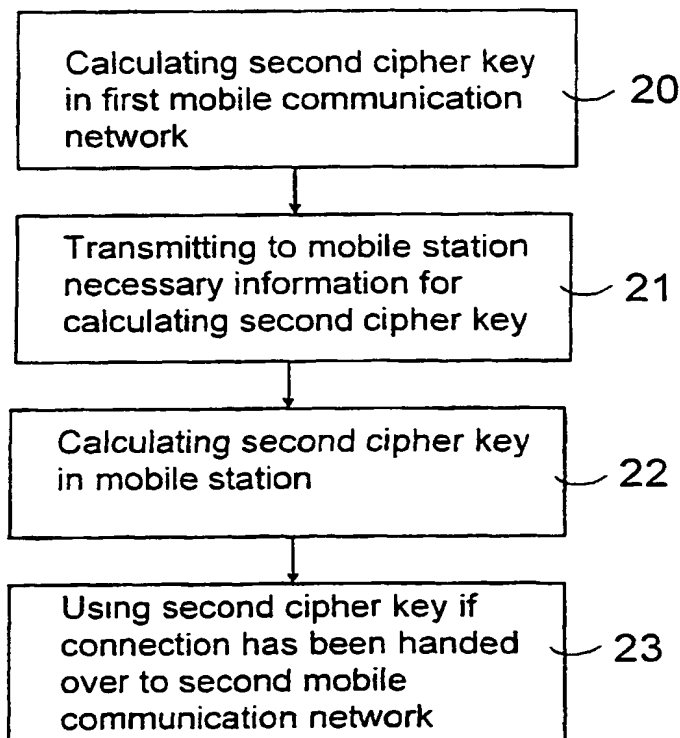
(FI). MÄKINEN, Teemu [FI/FI]; Tanhumaentie 23 B 1, FIN-04420 Järvenpää (FI). EKOLA, Keijo [FI/FI]; Lepolankuja 4 C 7, FIN-33900 Tampere (FI). VIRTANEN, Kari, O. [FI/FI]; Tohtorinkatu 34 D 17, FIN-33720 Tampere (FI). TAMMI, Kalle [FI/FI]; Vernissaraitti 8 A 9, FIN-33720 Tampere (FI). HALMINEN, Harri [FI/FI]; Urheilutie 3 B 8, FIN-36200 Kangasala (FI). TERVO, Vesa [FI/FI]; Kuusimäenkatu 14, FIN-33560 Tampere (FI). VILPPULA, Matti [FI/FI]; Koivutie 16 B 6, FIN-33960 Pirkkala (FI). LINDHOLM, Rune [FI/FI]; Mahlarinne 8, FIN-24280 Salo (FI). TIMONEN, Juha, T. [FI/FI]; Soirotie 7, FIN-90800 Oulu (FI). SMOLANDER, Jouni [FI/FI]; Pellervonkatu 22 A 13, FIN-33540 Tampere (FI).

(74) Agent: KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).

(81) Designated States (national): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model),

[Continued on next page]

(54) Title: ARRANGING AUTHENTICATION AND CIPHERING IN MOBILE COMMUNICATION SYSTEM



(57) Abstract: A method of arranging authentication and ciphering in a telecommunication system comprising two different mobile communication networks, a mobile station communicating with a first one of the mobile communication networks. In the first mobile communication network, a cipher key according to a second mobile communication network is calculated and information necessary for calculating the cipher key is transmitted to the mobile station, at which the cipher key according to the second mobile communication network is also calculated. After the connection has been handed over to the second mobile communication network, traffic is ciphered by using said precalculated cipher key.

WO 00/76194 A1



model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

- (84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- *With international search report.*
- *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.